

**(19) World Intellectual Property  
Organization  
International Bureau**



## PCT

**(10) International Publication Number**  
**WO 2003/060891 A3**

- (51) **International Patent Classification<sup>7</sup>:** G11B 7/135, G02B 3/08, 5/18

(21) **International Application Number:** PCT/IB2002/005624

(22) **International Filing Date:** 18 December 2002 (18.12.2002)

(25) **Filing Language:** English

(26) **Publication Language:** English

(30) **Priority Data:**  
02075210.1 17 January 2002 (17.01.2002) EP  
02077463.4 21 June 2002 (21.06.2002) EP

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(81) **Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

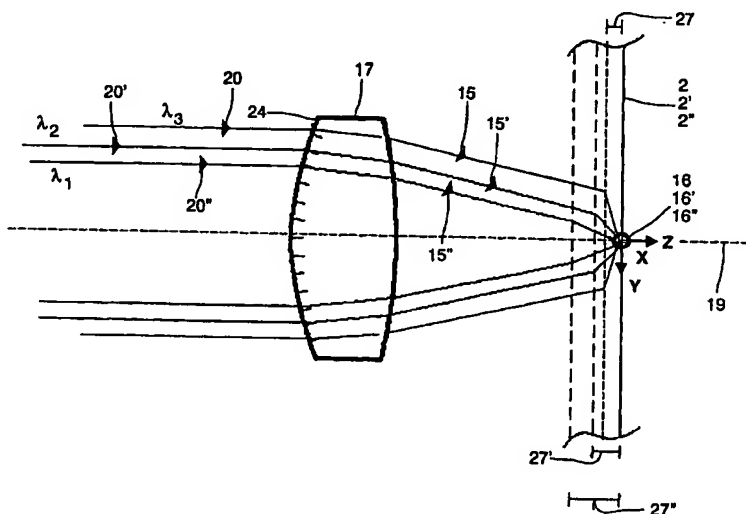
**Published:**  
— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

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- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

[Continued on next page]

**(54) Title:** OPTICAL SCANNING DEVICE



(57) **Abstract:** An optical scanning device (1) for scanning three information layer (2, 2', 2'') with three respective radiation beams (4, 4', 4'') having three respective wavelengths ( $\lambda_1, \lambda_2, \lambda_3$ ) and polarizations (p1, p2, p3). The three wavelengths differ from each other. At least one of the three polarizations differs from the others. The device comprises a diffractive part (24) including a pattern of pattern elements which have one stepped profile for forming three diffracted beams (15, 15', 15'') from the three radiation beams, the part comprising birefringent material, sensitive to the three polarizations. The stepped profile is designed such that the heights ( $h_j$ ) of the steps of a pattern element introduce phase changes that equal at least two different multiples of  $2\pi$  for one ( $\lambda_1$ ) of the three wavelengths and equal at least two different phase changes modulo  $2\pi$  for one ( $\lambda_2$ ) of the two other wavelengths.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 02/05624

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 2001209966	A	03-08-2001	NONE	
US 5526338	A	11-06-1996	EP 0731459 A2 IL 117057 A JP 8339571 A	11-09-1996 15-07-1998 24-12-1996
WO 0221522	A	14-03-2002	CN 1394335 T WO 0221522 A1 EP 1320851 A1 US 2002118427 A1	29-01-2003 14-03-2002 25-06-2003 29-08-2002
WO 03060892	A	24-07-2003	WO 03060892 A2	24-07-2003



**(88) Date of publication of the International search report:**  
18 March 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

International Application No  
PCT/IB 02/05624

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 G11B7/135 G02B3/08 G02B5/18

### B. FIELDS SEARCHED

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

PAJ, EPO-Internal

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 25, 12 April 2001 (2001-04-12) & JP 2001 209966 A (PIONEER ELECTRONIC CORP), 3 August 2001 (2001-08-03) cited in the application abstract	1,15
A	US 5 526 338 A (HASMAN EREZ ET AL) 11 June 1996 (1996-06-11) abstract	1,15
P,A	WO 02 21522 A (KONINKL PHILIPS ELECTRONICS NV) 14 March 2002 (2002-03-14) the whole document	1,15
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

- "A" document defining the general state of the art which is not considered to be of particular relevance
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"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

**"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone**

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

2 December 2003

Date of mailing of the international search report

26/01/2004

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# INTERNATIONAL SEARCH REPORT

In tional Application No  
PCT/IB 02/05624

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
E	<p>WO 03 060892 A (DE VRIES JORRIT E ;HENDRIKS BERNARDUS H W (NL); KONINKL PHILIPS EL) 24 July 2003 (2003-07-24) the whole document</p> <p>-----</p>	1,15